

APPARATUS AND METHOD FOR ATOMIC LAYER DEPOSITION ON SUBSTRATES

Abstract of the Disclosure

A deposition station allows atomic layer deposition (ALD) of films onto a substrate. The station comprises an upper and a lower substantially flat part between which a substrate is accommodated. The parts are positioned opposite each other and parallel to the substrate during processing. At least one of the parts is provided with a plurality of gas channels that allow at least two mutually reactive reactants to be discharged out of that part to the substrate. The discharge is configured to occur in a sequence of alternating, separated pulses for ALD. In addition, each part is preferably configured to be about 1 mm or less from the substrate to minimize the volume of the reaction chamber to increase the efficiency with which gases are purged from the chamber. Also, for each reactant, the upper and lower parts are preferably kept at a temperature outside of the window in which optimal ALD of that reactant occurs, thereby minimizing deposition of that reactant on deposition station surfaces.

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